Properties of Chemicals

Another important aspect of a data management program is to obtain a listing of the properties of chemicals. The properties of these chemicals will be useful in determining the extent of ground water contamination, methods for aquifer restoration, and implementing regulations concerning chemical usage and control. The major properties of interest are listed in Table 4.2.

The rate of movement and fate of chemicals in the subsurface environment are affected by its physical, chemical, and biological characteristics. For example, trichloroethylene (TCE) moves more readily in an aquifer than does DDT. This is because of its lower sorption coefficient, which can be related to the chemical's higher water solubility and lower octanol/water partition coefficient. TCE is relatively nonbiodegradable under aerobic

TABLE 4.2 Properties of Chemicals of Interest to Ground Water Management Programs

Physical Properties
Water solubility
Octanol/water partition coefficients
Vapor pressure (Henry's law constant)
Sorptive characteristics
Density
Viscosity

Chemical Properties
Structure
Isomeric forms, homologs Transformation potential and end products Other commingled compounds and carriers

Biological Properties
Biodegradability
Aerobic
Anaerobic Metabolic products

Toxicologic Properties
(The Chemical and Its Transformation Products)
Acute effects Chronic effects